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### (54) PATTERN SHEETS

BLATTSCHABLONEN

FEUILLES A MOTIFS

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(72) Inventor: RINGÖ, Peter  
S-236 33 Höllviken (SE)

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(74) Representative: Hansen, Bernd, Dr. Dipl.-Chem.  
Hoffmann, Eitle & Partner,  
Patentanwälte,  
Arabellastrasse 4  
81925 München (DE)

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(73) Proprietor: PERSTORP FLOORING AB  
S-231 25 Trelleborg (SE)

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## Description

The present invention relates to pattern sheets provided with a bar pattern comprising a plurality of parallel rows of bars, the bars in adjoining rows preferably being mutually offset in the longitudinal direction, which sheets are intended for use at the production of a panel to be cut into a number of a floor boards each consisting of b rows of bars.

During the last few years laminated floors have achieved and increased popularity and on many markets they are beginning to replace parquet floors and wall-to-wall carpets. At the production of laminated floors a decorative thermosetting laminate is first produced. This laminate usually consists of a base layer of paper sheets impregnated with phenol-formaldehyde resin and a decorative surface layer consisting of a decor paper sheet impregnated with melamine-formaldehyde resin. The laminate is produced by pressing the different layers at a high pressure and an increased temperature.

The laminate obtained is then glued to a carrier of particle board for instance. The laminated panel thus produced is then sawn up to a number of floor boards which are provided with groove and tenon at the long sides and the short sides. Often the floor boards produced have a thickness of about 7 mm. Thereby they can usually be put on top of the existing flooring material at a renovation. According to another alternative, instead one or more of the above decorative sheets can be laminated directly towards a base sheet of particle board for instance.

Bar patterns are very usual for laminated floors. Usually such patterns consist of several parallel rows of wood like bars having the same width, where the bars in adjoining rows are mutually offset in the longitudinal direction. One more and more popular variant is to produce floor boards with three bars, that is floor boards with three rows of bars from such a laminated panel having such a bar pattern.

In the international patent application PCT/SE90/00196, publication No. WO91/06728 the production of a pattern sheet intended for manufacture of laminated floors with bar pattern is disclosed. It is mentioned there that it is not possible to saw the laminated panel at a sufficient precision to get floor boards with a desired number of rows of bars having the same width. Therefore, to avoid the alleged problem the bar pattern has been designed in such a manner that certain bars have about twice the width of the other bars. The panel is sawn up to floor boards in these broad bars. Any saw setting error can thereby be adjusted easier.

For many years we have used saws with such a performance that the saw cut will land in the desired place at the border between two rows of bars. Therefore, there is no need for us to design the pattern with broad rows of bars where the saw cut is to be made.

There is a problem with pattern sheets provided

with bar pattern which problem is neither disclosed nor solved according to the above international patent application.

Thus, usually pattern paper in the form of rolls are used at the production of laminates for floor boards. Then the roll is cut to sheets, all having the same length. How the pattern on the different sheets will be placed is not taken into consideration. Therefore, problems with the pattern arise repeatedly at the short ends of the floor boards. Accordingly, the length of the bars will vary. Sometimes they are undesirably long and sometimes they are far too short.

Especially too short blocks at the short ends of the boards give an ugly and disturbing effect on the finished floor. At too short bars it even happens that whole floor boards must be rejected. Moreover, if the decor or the colour of the end bars of one board is very different from the end bars of the next board the negative effect is strengthened even more.

It is the object of the present invention to solve the above problems.

This object is solved according to the present invention by means of pattern sheets including the features of claim 1. Detailed embodiments are defined in the dependent claims.

According to the present invention it has been possible to solve the above problem and bring about pattern sheets provided with a bar pattern comprising a plurality of parallel rows of bars, the bars in adjoining rows preferably being mutually offset in the longitudinal direction, which sheets are intended for use at the production of a panel to be cut into a number of a floor boards each consisting of b rows of bars. The pattern sheets are characterized in that all sheets preferably have exactly the same position of the pattern, that the bar pattern preferably over its entire width is designed in such a manner that the pattern sheets comprise a x b rows of bars, whereby the left end bars in each row in consecutive order (fig 1) are designated with V<sub>1</sub>, V<sub>2</sub>, V<sub>3</sub>, V<sub>4</sub>, V<sub>5</sub>, V<sub>6</sub>, V<sub>7</sub>, V<sub>8</sub>, V<sub>9</sub> etc and the right end bars in each row are designated with H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, H<sub>4</sub>, H<sub>5</sub>, H<sub>6</sub>, H<sub>7</sub>, H<sub>8</sub>, H<sub>9</sub> etc, that the patterns on the left end bars and the right end bars with the same ordinal numbers, for example V<sub>1</sub> and H<sub>1</sub>, on at least one row of bars of each board match each other and that the patterns on these bars match the patterns of the end bars of the corresponding rows on all boards.

By the above position of the bar pattern on the pattern sheets the bar pattern will preferably coincide fully lengthwise on the different sheets. In order to facilitate such an exact cutting of a roll shaped pattern paper, it is suitable to print special cutting marks at the edge of the paper web beside the real decor at the same time as the decor printing is made. These cutting marks are then used when the paper is cut.

According to one preferred embodiment of the invention the pattern on the pattern sheets is designed in such a manner that the left end bars and the right end

bars with the same ordinal numbers that is  $V_1$  and  $H_1$ , etc on at least two rows of bars of each board, preferably on all rows of bars of each board match each other.

A simple correlation can be made about how the matching left end bars match each other and the matching right end bars.

Then the matching end bars can be designated with V for the left end bars and H for the right end bars. The left end bars  $V_n, V_{n+b}, V_{n+2b}, \dots, V_{n+(a-1)b}$  match the corresponding right end bars  $H_n, H_{n+b}, H_{n+2b}, \dots, H_{n+(a-1)b}$ .

In addition  $V_n$  matches all left end bars  $V_{n+b}, V_{n+2b}, \dots, V_{n+(a-1)b}$  and  $H_n$  matches all right end bars  $H_{n+b}, H_{n+2b}, \dots, H_{n+(a-1)b}$ .

The number of floor boards in breadth on the pattern sheet is designated with a and b is the number of rows of bars per board and n is an arbitrary ordinal number between 1 and b. Thus, if a is 3 and b is 3 all right end bars and left end bars with the ordinal numbers 1, 4 and 7; 2, 5 and 8 and 3, 6 and 9 respectively will have matching patterns.

The expression matching patterns does not mean that the patterns must have exactly the same colour and appearance. Suitably the matching patterns have a similar colour at wood patterns. However, the graining can differ a little. At the above example where a is 3 and b is 3 a pattern matching can be used which is designed in such a manner that the left end bars and right end bars  $V_1, V_4, V_7, H_1, H_4$  and  $H_7$  are pale while  $V_2, V_5, V_8, H_2, H_5$  and  $H_8$  are dark and  $V_3, V_6, V_9, H_3, H_6$  and  $H_9$  finally are medium dark. The graining of these matching end bars can vary somewhat.

Alternatives where adjoining short end bars are matched in colours rich in contrast are also possible. For example  $V_1, V_4$  and  $V_7$  can be pale and  $H_1, H_4$  and  $H_7$  dark etc.

Accordingly, in general sense the expression matching patterns means that the colour and the pattern of the individual short end bars are decided in advance in such a way that a floor with an optimal predetermined appearance can be brought about by means of the floor boards produced. Thus, the colour and the pattern of the short end bars will not be decided by chance.

Preferably the pattern sheets according to the invention are produced in rolls with a repeated bar pattern, whereby the roll is cut into sheets, preferably with exactly the same position of the pattern on all sheets. Of course the pattern can be printed on separate sheets instead. However, because of the expense this is usually disadvantageous.

Normally the bars in all rows have substantially the same width. It is however possible to vary the width of the rows. For example you can have one narrow row, one row being twice as wide and a narrow row again on each board. As mentioned above the number of rows of bars on each board is usually three but the number can be two, four or more for example.

The invention is explained further in connection with the enclosed figures, of which fig 1. shows the appear-

ance of a pattern sheet according to one embodiment of the invention. Fig 2. illustrates how floor boards produced by means of such pattern sheets have been put out together to a complete floor.

The pattern sheet on fig 1. consists of nine rows of bars having substantially the same width. The left end bars on the pattern sheet are designated with  $V_1, V_2, V_3, V_4, V_5, V_6, V_7, V_8$  and  $V_9$  while the right end bars are designated with  $H_1, H_2, H_3, H_4, H_5, H_6, H_7, H_8$  and  $H_9$ .

As illustrated by fig 1. the patterns on the left end bars and the right end bars with the same ordinal numbers are matched with each other on all rows. For elucidation purposes the bars situated between these matching end bars on the respective row are not provided with pattern in figs 1 and 2. However, in reality they are provided with a wholly arbitrary pattern.

Thus, the patterns on the different left end bars and right end bars match each other in the following way:

$V_1$  matches  $H_1$   
 $V_2$  matches  $H_2$   
 $V_3$  matches  $H_3$   
 $V_4$  matches  $H_4$   
 $V_5$  matches  $H_5$   
 $V_6$  matches  $H_6$   
 $V_7$  matches  $H_7$   
 $V_8$  matches  $H_8$   
 $V_9$  matches  $H_9$

Moreover the patterns of the different left end bars match each other as follows:

$V_1$  matches  $V_4$  and  $V_7$   
 $V_2$  matches  $V_5$  and  $V_8$   
 $V_3$  matches  $V_6$  and  $V_9$

Finally the patterns of the different right end bars match each other as follows:

$H_1$  matches  $H_4$  and  $H_7$   
 $H_2$  matches  $H_5$  and  $H_8$   
 $H_3$  matches  $H_6$  and  $H_9$

The pattern sheet according to fig 1. was impregnated with melamine-formaldehyde resin and used as a decorative surface at the production of a decorative thermosetting laminate comprising base paper sheets impregnated with phenol-formaldehyde resin. The laminate was produced in the usual way by pressing in a laminate press at an increased temperature. Thereafter the laminate was glued to a base consisting of a particle board.

The laminated panel obtained was then sawn up into three floor boards. Longitudinal saw cuts were made exactly between the rows 3 and 4 and 6 and 7 respectively. The floor boards were then furnished with groove and tenon at the long and short sides.

Several such pattern sheets with the same position of the pattern on all sheets according to the invention were used for the production of floor boards as disclosed above.

On fig 2. it is illustrated how several such floor boards have been put out together to a complete floor. It is evident how the patterns of the left end bars and the right end bars match each other.

According to the present invention the great advantage for the floor-layer is obtained that he has got a predetermined great number of uniquely fitting combinations, up to  $a^2$  different combinations by means of the short end matching. The floor-layer does not have to study the patterns of the different boards appreciably in advance. He can freely put board after board or actively use the fact that the end bars are matched in respect of the pattern.

The invention is not limited to the embodiments shown, since these can be modified in different ways within the scope of the appended claims.

#### Claims

1. Pattern sheets provided with a bar pattern comprising a plurality of parallel rows of bars, the ends of the bars in adjacent rows being mutually offset in the longitudinal direction, which sheets are intended for use at the production of a panel to be cut into a number  $a$  of floor boards each consisting of  $b$  rows of bars, characterized in that the bar pattern over its entire width is designed in such a manner that the pattern sheets comprise  $a \times b$  rows of bars, whereby if the left end bars in each row are designated ( $V_1, V_2, V_3$  etc.) and the right end bars are given a corresponding designation ( $H_1, H_2, H_3$  etc.), that the patterns on the left end bars and the right end bars with the same ordinal numbers (for example  $V_1$  and  $H_1$ ) on at least one row of bars of each board match each other and that the patterns on these bars match the patterns of the end bars of the corresponding rows on all boards.
2. Pattern sheets according to claim 1, wherein the patterns on the left end bars and the right end bars with the same ordinal numbers (that is  $H_1$  and  $V_1$  etc.) on all rows of bars are matched with each other.
3. Pattern sheets according to claim 1 or 2, wherein  $a$  is 3 and  $b$  is 3, whereby all right end bars and all left end bars with the ordinal numbers 1, 4, 7; 2, 5 and 8 and 3, 6 and 9 respectively have matching patterns.
4. Pattern sheets according to any one of claims 1-3, characterized in that they are produced in the form of rolls with a repeating bar pattern, whereby the roll

is cut into sheets, preferably with exactly the same position of the pattern on all sheets.

5. Pattern sheets according to any one of claims 1-4, wherein the bars in all rows have essentially the same width.
6. Pattern sheets according to any one of claims 1-4, wherein all sheets have exactly the same position of the pattern.

#### Patentansprüche

1. Musterbögen, die mit einem Stabmuster versehen sind, umfassend eine Mehrzahl von parallelen Reihen von Stäben, wobei die Enden der Stäbe in den benachbarten Reihen in Längsrichtung gegeneinander versetzt sind, wobei diese Bögen zur Verwendung bei der Fertigung einer Tafel vorgesehen sind, die in eine Anzahl von  $a$  Bodenbrettern zerschnitten werden soll, von denen jedes aus  $b$  Reihen von Stäben besteht, dadurch gekennzeichnet, daß das Stabmuster über ihre gesamte Breite in einer solchen Weise gestaltet ist, daß die Musterbögen  $a \times b$  Reihen von Stäben umfassen, wobei wenn die linken Endstäbe in jeder Reihe mit ( $V_1, V_2, V_3$ , usw.) bezeichnet sind und die rechten Endstäbe eine entsprechende Bezeichnung ( $H_1, H_2, H_3$ , usw.) erhalten, die Muster auf den linken Endstäben und den rechten Endstäben mit denselben Ordnungszahlen (zum Beispiel  $V_1$  und  $H_1$ ) auf mindestens einer Reihe von Stäben jedes Bretts zueinander passen, und die Muster auf diesen Stäben zu den Mustern der Endstäbe der entsprechenden Reihen auf sämtlichen Brettern passen.
2. Musterbögen nach Anspruch 1, dadurch gekennzeichnet, daß die Muster auf den linken Endstäben und den rechten Endstäben mit denselben Ordnungszahlen (das heißt  $H_1$  und  $V_1$  usw.) auf sämtlichen Reihen von Stäben aufeinander abgestimmt sind.
3. Musterbögen nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß  $a$  3 ist und  $b$  3 ist, wobei sämtliche rechten Endstäbe und sämtliche linken Endstäbe mit den Ordnungszahlen 1, 4, 7; 2, 5 und 8 bzw. 3, 6 und 9 jeweils aufeinander abgestimmte Muster aufweisen.
4. Musterbögen nach einem beliebigen der Ansprüche 1-3, dadurch gekennzeichnet, daß sie in Form von Rollen mit einem sich wiederholenden Stabmuster hergestellt werden, wobei die Rolle in Bögen geschnitten wird, vorzugsweise mit genau derselben Lage des Musters auf sämtlichen Bögen.

5. Musterbögen nach einem beliebigen der Ansprüche 1-4, dadurch gekennzeichnet, daß die Stäbe in sämtlichen Reihen im wesentlichen dieselbe Breite besitzen.
6. Musterbögen nach einem beliebigen der Ansprüche 1-4, dadurch gekennzeichnet, daß sämtliche Bögen genau dieselbe Lage des Musters aufweisen.

5. Feuilles à motifs selon l'une quelconque des revendications 1 à 4, dans lesquelles les barres de toutes les rangées ont sensiblement la même largeur.

- 5 6. Feuilles à motifs selon l'une quelconque des revendications 1 à 4, dans lesquelles les motifs ont exactement la même position sur toutes les feuilles.

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#### Revendications

1. Feuilles à motifs dotées d'un motif de barres qui comprend une pluralité de rangées de barres parallèles, les extrémités des barres de rangées contiguës étant de préférence décalées les unes par rapport aux autres dans la direction longitudinale, lesquelles feuilles sont destinées à être utilisées pour la fabrication d'un panneau qui sera découpé en un certain nombre de lames de revêtement de sol contenant chacune b rangées de barres, caractérisées en ce que le motif de barres est conçu sur toute sa largeur de manière à ce que les feuilles à motifs contiennent a x b rangées de barres, si bien que les barres de l'extrémité gauche de chaque rangée sont désignées par  $V_1, V_2, V_3$ , etc, et que les barres de l'extrémité droite de chaque rangée sont désignées par  $H_1, H_2, H_3$ , etc, en ce que les motifs sur les barres de l'extrémité gauche et sur les barres de l'extrémité droite portant le même indice (comme par exemple  $V_1$  et  $H_1$ ) se correspondent sur l'une au moins des rangées de barres de chaque lame, et en ce que les motifs sur ces barres correspondent aux motifs des barres d'extrémité des rangées correspondantes sur toutes les lames.
2. Feuilles à motifs selon la revendication 1, dans lesquelles les motifs sur les barres de l'extrémité gauche et les barres de l'extrémité droite qui portent le même indice (par exemple  $H_1$  et  $V_1$ ) se correspondent sur toutes les rangées de barres.
3. Feuilles à motifs selon la revendication 1 ou 2, dans lesquelles a vaut 3 et b vaut 3, si bien que toutes les barres de l'extrémité droite et toutes les barres de l'extrémité gauche avec les indices 1, 4, 7, ou 2, 5, 8 et 3, 6, 9 ont respectivement des motifs coïncidents.
4. Feuilles à motifs selon l'une quelconque des revendications 1 à 3, caractérisées en ce qu'elles sont produites sous la forme de rouleaux avec un motif de barres qui se répète, si bien que le rouleau est découpé en feuilles, de préférence avec exactement la même position du motif sur toutes les feuilles.

Fig. 1 / 2

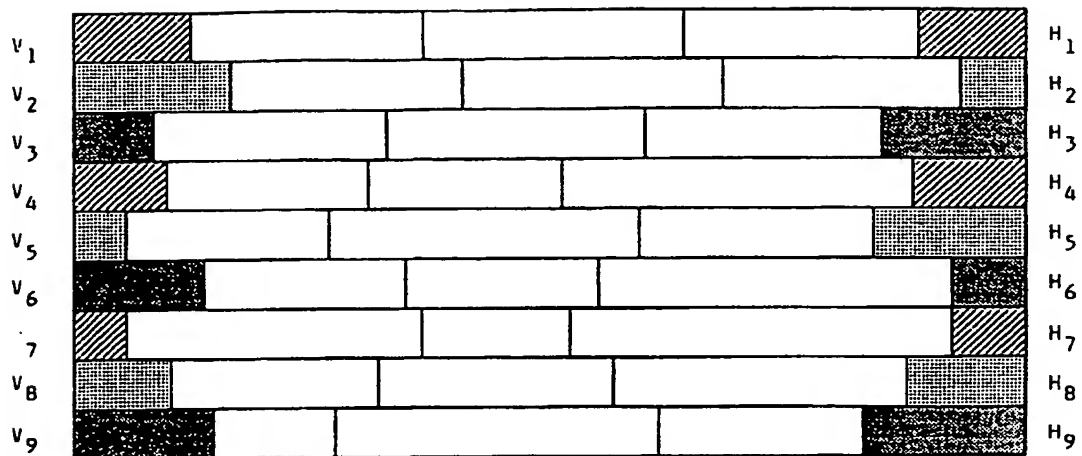


Fig. 2 / 2

